

590

1009

#2.

OIPE

## RAW SEQUENCE LISTING

DATE: 10/05/2001

PATENT APPLICATION: US/09/954,950

TIME: 15:24:02

Input Set : A:\35718-238971 Seq Listing.txt

Output Set: N:\CRF3\10052001\I954950.raw

4 <110> APPLICANT: Mahajan, Pramod B.  
6 <120> TITLE OF INVENTION: Rice MLH1 Ortholog and Uses Thereof  
9 <130> FILE REFERENCE: 35718/238971  
C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/954,950  
C--> 11 <141> CURRENT FILING DATE: 2001-09-18  
11 <150> PRIOR APPLICATION NUMBER: 60/233,124  
12 <151> PRIOR FILING DATE: 2000-09-18  
14 <160> NUMBER OF SEQ ID NOS: 4  
16 <170> SOFTWARE: FastSEQ for Windows Version 4.0  
18 <210> SEQ ID NO: 1  
19 <211> LENGTH: 2501  
20 <212> TYPE: DNA  
21 <213> ORGANISM: Oryza sativa  
23 <220> FEATURE:  
24 <221> NAME/KEY: CDS  
25 <222> LOCATION: (121)...(2295)  
27 <400> SEQUENCE: 1

28	cggcacgaga ttttgacgtc tctctctctc ctccgctcga gcgagtgtgagg cccgaccacg	60
29	tcgctgcctt cgcctcaccg ccggccaacc gccgtgacga gagatcgagc agggcggggc	120
30	atg gac gag cct tcg ccg cgc gga ggt ggg tgc gcc ggg gag ccg ccc	168
31	Met Asp Glu Pro Ser Pro Arg Gly Gly Gly Cys Ala Gly Glu Pro Pro	
32	1 5 10 15	
34	cgc atc cgg agg ttg gag gag tcg gtg gtg aac cgc atc gcg gcg ggg	216
35	Arg Ile Arg Arg Leu Glu Glu Ser Val Val Asn Arg Ile Ala Ala Gly	
36	20 25 30	
38	gag gtg atc cag cgg ccg tcg tcg gcg gtg aag gag ctc atc gag aac	264
39	Glu Val Ile Gln Arg Pro Ser Ser Ala Val Lys Glu Leu Ile Glu Asn	
40	35 40 45	
42	agc ctc gac gct ggc gcc tcc agc gtc tcc gtt gcg gtg aag gac ggt	312
43	Ser Leu Asp Ala Gly Ala Ser Ser Val Ser Val Ala Val Lys Asp Gly	
44	50 55 60	
46	ggc ctc aag ctc atc cag gtc tcc gat gac ggc cat ggc atc agg ttt	360
47	Gly Leu Lys Leu Ile Gln Val Ser Asp Asp Gly His Gly Ile Arg Phe	
48	65 70 75 80	
50	gag gat ttg gca ata ttg tgc gaa agg cat act acc tca aag tta tct	408
51	Glu Asp Leu Ala Ile Leu Cys Glu Arg His Thr Thr Ser Lys Leu Ser	
52	85 90 95	
54	gca tac gag gat ctg cag acc ata aaa tcg atg ggg ttc aga ggg gag	456
55	Ala Tyr Glu Asp Leu Gln Thr Ile Lys Ser Met Gly Phe Arg Gly Glu	
56	100 105 110	
58	gct ttg gct agt atg act tat gtt ggc cat gtt acc gtg aca acg ata	504
59	Ala Leu Ala Ser Met Thr Tyr Val Gly His Val Thr Val Thr Thr Ile	
60	115 120 125	
62	aca gaa ggc caa ttg cac ggc tac agg gtt tct tac aga gat ggt gta	552
63	Thr Glu Gly Gln Leu His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val	
64	130 135 140	
66	atg gag aat gag cct aag cct tgc gct gcg gtg aaa gga act caa gtc	600

ENTERED

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Input Set : A:\35718-238971 Seq Listing.txt

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67 Met Glu Asn Glu Pro Lys Pro Cys Ala Ala Val Lys Gly Thr Gln Val
68 145 150 155 160
70 atg gtt gaa aat cta ttt tac aac atg gta gcc cgc aag aaa aca ttg 648
71 Met Val Glu Asn Leu Phe Tyr Asn Met Val Ala Arg Lys Lys Thr Leu
72 165 170 175
74 cag aac tcc aat gat gac tac ccc aag atc gta gac ttc atc agt cgg 696
75 Gln Asn Ser Asn Asp Asp Tyr Pro Lys Ile Val Asp Phe Ile Ser Arg
76 180 185 190
78 ttt gca gtc cat cac atc aac gtt acc ttc tct tgc aga aag cat gga 744
79 Phe Ala Val His His Ile Asn Val Thr Phe Ser Cys Arg Lys His Gly
80 195 200 205
82 gcc aat aga gca gat gtt cat agt gca agt aca tcc tca agg tta gat 792
83 Ala Asn Arg Ala Asp Val His Ser Ala Ser Thr Ser Ser Arg Leu Asp
84 210 215 220
86 gct atc agg agt gtc tat ggg gct tct gtc gtt cgt gat ctc ata gaa 840
87 Ala Ile Arg Ser Val Tyr Gly Ala Ser Val Val Arg Asp Leu Ile Glu
88 225 230 235 240
90 ata aag gtt tca tat gag gat gct gca gat tca atc ttc aag atg gat 888
91 Ile Lys Val Ser Tyr Glu Asp Ala Ala Asp Ser Ile Phe Lys Met Asp
92 245 250 255
94 ggt tac atc tca aat gca aat tat gtg gca aag aag att aca atg att 936
95 Gly Tyr Ile Ser Asn Ala Asn Tyr Val Ala Lys Lys Ile Thr Met Ile
96 260 265 270
98 ctt ttc ata aat gat agg ctt gta gac tgt act gct ttg aaa aga gct 984
99 Leu Phe Ile Asn Asp Arg Leu Val Asp Cys Thr Ala Leu Lys Arg Ala
100 275 280 285
102 att gaa ttt gtg tac tct gca aca ttg cct caa gca tcc aaa cct ttc 1032
103 Ile Glu Phe Val Tyr Ser Ala Thr Leu Pro Gln Ala Ser Lys Pro Phe
104 290 295 300
106 ata tac atg tcc ata cat ctt cca tca gaa cac gtg gat gtt aat ata 1080
107 Ile Tyr Met Ser Ile His Leu Pro Ser Glu His Val Asp Val Asn Ile
108 305 310 315 320
110 cac cca acc aag aaa gag gtt agc ctt ttg aat caa gag cgt att att 1128
111 His Pro Thr Lys Lys Glu Val Ser Leu Leu Asn Gln Glu Arg Ile Ile
112 325 330 335
115 gaa aca ata aga aat gct att gag gaa aaa ctg atg aat tct aat aca 1176
116 Glu Thr Ile Arg Asn Ala Ile Glu Glu Lys Leu Met Asn Ser Asn Thr
117 340 345 350
119 acc agg ata ttc caa act cag gca tta aac tta tca ggg att gct caa 1224
120 Thr Arg Ile Phe Gln Thr Gln Ala Leu Asn Leu Ser Gly Ile Ala Gln
121 355 360 365
123 gct aac cca caa aag gat aag gtt tct gag gcc agt atg ggt tct gga 1272
124 Ala Asn Pro Gln Lys Asp Lys Val Ser Glu Ala Ser Met Gly Ser Gly
125 370 375 380
127 aca aaa tct caa aaa att cct gtg agc caa atg gtc aga aca gat cca 1320
128 Thr Lys Ser Gln Lys Ile Pro Val Ser Gln Met Val Arg Thr Asp Pro
129 385 390 395 400
131 cgc aat cca tct gga aga ttg cac acc tac tgg cac ggg caa tct tca 1368
132 Arg Asn Pro Ser Gly Arg Leu His Thr Tyr Trp His Gly Gln Ser Ser

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Input Set : A:\35718-238971 Seq Listing.txt

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133		405		410		415	
135	aat ctt gaa aag aaa ttt gat ctt gta tct gta aga aat gtt gta aga						1416
136	Asn Leu Glu Lys Lys Phe Asp Leu Val Ser Val Arg Asn Val Val Arg						
137		420		425		430	
139	tca agg aga aac caa aaa gat gct ggt gat ttg tca agc cgt cat gag						1464
140	Ser Arg Arg Asn Gln Lys Asp Ala Gly Asp Leu Ser Ser Arg His Glu						
141		435		440		445	
143	ctc ctt gtg gaa ata gat tct agc ttc cat cct ggc ctt ttg gac att						1512
144	Leu Leu Val Glu Ile Asp Ser Ser Phe His Pro Gly Leu Leu Asp Ile						
145		450		455		460	
147	gtc aag aac tgc aca tat gtt gga ctt gcc gat gaa gcc ttt gct ttg						1560
148	Val Lys Asn Cys Thr Tyr Val Gly Leu Ala Asp Glu Ala Phe Ala Leu						
149	465		470		475	480	
151	ata caa cac aat acc cgc tta tac ctt gta aat gtg gta aat att agt						1608
152	Ile Gln His Asn Thr Arg Leu Tyr Leu Val Asn Val Val Asn Ile Ser						
153		485		490		495	
155	aaa gaa ctt atg tac cag caa gct ttg tgc cgt ttt ggg aac ttc aat						1656
156	Lys Glu Leu Met Tyr Gln Gln Ala Leu Cys Arg Phe Gly Asn Phe Asn						
157		500		505		510	
159	gct att cag ctc agt gaa cca gct cca ctt cag gag ttg ctg gtg atg						1704
160	Ala Ile Gln Leu Ser Glu Pro Ala Pro Leu Gln Glu Leu Leu Val Met						
161		515		520		525	
163	gca ctg aaa gac gat gaa ttg atg agt gat gaa aag gat gat gag aaa						1752
164	Ala Leu Lys Asp Asp Glu Leu Met Ser Asp Glu Lys Asp Asp Glu Lys						
165		530		535		540	
167	ctg gag att gca gaa gta aac act gag ata cta aaa gaa aat gct gag						1800
168	Leu Glu Ile Ala Glu Val Asn Thr Glu Ile Leu Lys Glu Asn Ala Glu						
169	545		550		555	560	
172	atg att aat gag tac ttt tct att cac att gat caa gat ggc aaa ttg						1848
173	Met Ile Asn Glu Tyr Phe Ser Ile His Ile Asp Gln Asp Gly Lys Leu						
174		565		570		575	
176	aca aga ctt cct gtt gta ctg gac cag tac acc cct gat atg gac cgt						1896
177	Thr Arg Leu Pro Val Val Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg						
178		580		585		590	
180	ctt cca gaa ttt gtg ttg gct tta gga aat gat gtt act tgg gat gac						1944
181	Leu Pro Glu Phe Val Leu Ala Leu Gly Asn Asp Val Thr Trp Asp Asp						
182		595		600		605	
184	gag aaa gag tgc ttc aga aca gta gct tct gct gta gga aac ttc tat						1992
185	Glu Lys Glu Cys Phe Arg Thr Val Ala Ser Ala Val Gly Asn Phe Tyr						
186		610		615		620	
188	gca ctt cat ccc cca atc ctt cca aat cca tct ggg aat ggc att cat						2040
189	Ala Leu His Pro Pro Ile Leu Pro Asn Pro Ser Gly Asn Gly Ile His						
190	625		630		635	640	
192	tta tac aag aaa aat aga gat tca atg gct gat gaa cat gct gag aat						2088
193	Leu Tyr Lys Lys Asn Arg Asp Ser Met Ala Asp Glu His Ala Glu Asn						
194		645		650		655	
196	gat cta ata tca gat gaa aat gac gtt gat caa gaa ctt ctt gcg gaa						2136
197	Asp Leu Ile Ser Asp Glu Asn Asp Val Asp Gln Glu Leu Leu Ala Glu						
198		660		665		670	

## RAW SEQUENCE LISTING

DATE: 10/05/2001

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TIME: 15:24:02

Input Set : A:\35718-238971 Seq Listing.txt

Output Set: N:\CRF3\10052001\I954950.raw

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200 gca gaa gca gca tgg gcc caa cgt gag tgg acc att cag cat gtc ttg      2184
201 Ala Glu Ala Ala Trp Ala Gln Arg Glu Trp Thr Ile Gln His Val Leu
202          675          680          685
204 ttt cca tcc atg cga ctt ttc ctc aag ccc ccg aag tca atg gca aca      2232
205 Phe Pro Ser Met Arg Leu Phe Leu Lys Pro Pro Lys Ser Met Ala Thr
206          690          695          700
208 gat gga acg ttt gtg cag gtt gct tcc ttg gag aaa ctc tac aag att      2280
209 Asp Gly Thr Phe Val Gln Val Ala Ser Leu Glu Lys Leu Tyr Lys Ile
210 705          710          715          720
212 ttt gaa agg tgt tag ctcataagtg agaaaatgaa ggcagagtaa gatcatgatt      2335
213 Phe Glu Arg Cys *
216 catggagtgt ttttgaaaat gtgtataatt tcaccgtatt atgtactttg atagtgtctg      2395
217 tagaaactga agaaagaaag atggctttac ttctgaattg aaagttaacg atgccagcaa      2455
218 ttgtatatc tgatcaacca aaaaaaaaaa aaaaaaaaaa aaaaaa      2501
220 <210> SEQ ID NO: 2
221 <211> LENGTH: 724
222 <212> TYPE: PRT
223 <213> ORGANISM: Oryza sativa
225 <400> SEQUENCE: 2
226 Met Asp Glu Pro Ser Pro Arg Gly Gly Gly Cys Ala Gly Glu Pro Pro
227 1          5          10          15
228 Arg Ile Arg Arg Leu Glu Glu Ser Val Val Asn Arg Ile Ala Ala Gly
229          20          25          30
230 Glu Val Ile Gln Arg Pro Ser Ser Ala Val Lys Glu Leu Ile Glu Asn
231          35          40          45
232 Ser Leu Asp Ala Gly Ala Ser Ser Val Ser Val Ala Val Lys Asp Gly
233          50          55          60
234 Gly Leu Lys Leu Ile Gln Val Ser Asp Asp Gly His Gly Ile Arg Phe
235 65          70          75          80
236 Glu Asp Leu Ala Ile Leu Cys Glu Arg His Thr Thr Ser Lys Leu Ser
237          85          90          95
238 Ala Tyr Glu Asp Leu Gln Thr Ile Lys Ser Met Gly Phe Arg Gly Glu
239          100          105          110
240 Ala Leu Ala Ser Met Thr Tyr Val Gly His Val Thr Val Thr Thr Ile
241          115          120          125
242 Thr Glu Gly Gln Leu His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val
243          130          135          140
244 Met Glu Asn Glu Pro Lys Pro Cys Ala Ala Val Lys Gly Thr Gln Val
245 145          150          155          160
246 Met Val Glu Asn Leu Phe Tyr Asn Met Val Ala Arg Lys Lys Thr Leu
247          165          170          175
248 Gln Asn Ser Asn Asp Asp Tyr Pro Lys Ile Val Asp Phe Ile Ser Arg
249          180          185          190
250 Phe Ala Val His His Ile Asn Val Thr Phe Ser Cys Arg Lys His Gly
251          195          200          205
252 Ala Asn Arg Ala Asp Val His Ser Ala Ser Thr Ser Ser Arg Leu Asp
253 210          215          220
254 Ala Ile Arg Ser Val Tyr Gly Ala Ser Val Val Arg Asp Leu Ile Glu
255 225          230          235          240

```

## RAW SEQUENCE LISTING

DATE: 10/05/2001

PATENT APPLICATION: US/09/954,950

TIME: 15:24:02

Input Set : A:\35718-238971 Seq Listing.txt

Output Set: N:\CRF3\10052001\I954950.raw

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256 Ile Lys Val Ser Tyr Glu Asp Ala Ala Asp Ser Ile Phe Lys Met Asp
257           245           250           255
258 Gly Tyr Ile Ser Asn Ala Asn Tyr Val Ala Lys Lys Ile Thr Met Ile
259           260           265           270
260 Leu Phe Ile Asn Asp Arg Leu Val Asp Cys Thr Ala Leu Lys Arg Ala
261           275           280           285
262 Ile Glu Phe Val Tyr Ser Ala Thr Leu Pro Gln Ala Ser Lys Pro Phe
263           290           295           300
264 Ile Tyr Met Ser Ile His Leu Pro Ser Glu His Val Asp Val Asn Ile
265 305           310           315           320
266 His Pro Thr Lys Lys Glu Val Ser Leu Leu Asn Gln Glu Arg Ile Ile
267           325           330           335
268 Glu Thr Ile Arg Asn Ala Ile Glu Glu Lys Leu Met Asn Ser Asn Thr
269           340           345           350
270 Thr Arg Ile Phe Gln Thr Gln Ala Leu Asn Leu Ser Gly Ile Ala Gln
271           355           360           365
272 Ala Asn Pro Gln Lys Asp Lys Val Ser Glu Ala Ser Met Gly Ser Gly
273           370           375           380
274 Thr Lys Ser Gln Lys Ile Pro Val Ser Gln Met Val Arg Thr Asp Pro
275 385           390           395           400
276 Arg Asn Pro Ser Gly Arg Leu His Thr Tyr Trp His Gly Gln Ser Ser
277           405           410           415
278 Asn Leu Glu Lys Lys Phe Asp Leu Val Ser Val Arg Asn Val Val Arg
279           420           425           430
280 Ser Arg Arg Asn Gln Lys Asp Ala Gly Asp Leu Ser Ser Arg His Glu
281           435           440           445
282 Leu Leu Val Glu Ile Asp Ser Ser Phe His Pro Gly Leu Leu Asp Ile
283           450           455           460
284 Val Lys Asn Cys Thr Tyr Val Gly Leu Ala Asp Glu Ala Phe Ala Leu
285 465           470           475           480
286 Ile Gln His Asn Thr Arg Leu Tyr Leu Val Asn Val Val Asn Ile Ser
287           485           490           495
288 Lys Glu Leu Met Tyr Gln Gln Ala Leu Cys Arg Phe Gly Asn Phe Asn
289           500           505           510
290 Ala Ile Gln Leu Ser Glu Pro Ala Pro Leu Gln Glu Leu Leu Val Met
291           515           520           525
292 Ala Leu Lys Asp Asp Glu Leu Met Ser Asp Glu Lys Asp Asp Glu Lys
293           530           535           540
294 Leu Glu Ile Ala Glu Val Asn Thr Glu Ile Leu Lys Glu Asn Ala Glu
295 545           550           555           560
296 Met Ile Asn Glu Tyr Phe Ser Ile His Ile Asp Gln Asp Gly Lys Leu
297           565           570           575
298 Thr Arg Leu Pro Val Val Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg
299           580           585           590
300 Leu Pro Glu Phe Val Leu Ala Leu Gly Asn Asp Val Thr Trp Asp Asp
301           595           600           605
302 Glu Lys Glu Cys Phe Arg Thr Val Ala Ser Ala Val Gly Asn Phe Tyr
303           610           615           620
304 Ala Leu His Pro Pro Ile Leu Pro Asn Pro Ser Gly Asn Gly Ile His

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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/954,950

DATE: 10/05/2001

TIME: 15:24:03

Input Set : A:\35718-238971 Seq Listing.txt

Output Set: N:\CRF3\10052001\I954950.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application No

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date